US Army Corps of Engineers Chicago District

# INDIANA HARBOR AND CANAL CONFINED DISPOSAL FACILITY

East Chicago WATERWAY MANAGEMENT DISTRICT

## Groundwater and Dredge Water Treatment

### Groundwater Treatment (before dredging)

**Treat groundwater extracted by Gradient Control System to discharge criteria in NPDES permit issued by Indiana Department of Environmental Management (IDEM)**

**From 2007 to 2012 – ~200 million gallons treated**

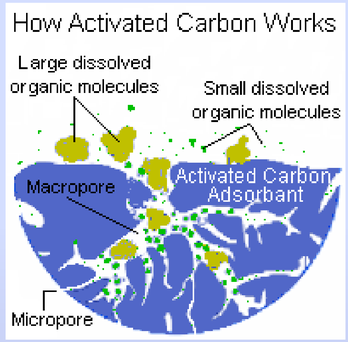
#### Primary groundwater contaminants

- Organic compounds (benzene, naphthalene, PCBs)
- Metals
- Ammonia
- Oil & grease

#### Primary processes

- Frac tank: flow equalization/primary settling
- Bag filters: metals removal
- Organo clay filters: oil removal
- Carbon filters: organic compound removal/polishing
- Chlorination: ammonia removal
- Sodium bisulfite addition: dechlorination
- Discharge to Canal

**Plant capacity**: 200 gallons per minute




### Dredge Water Treatment (after dredging starts)

**Treat water from the CDF cell to NPDES permit discharge criteria (parameter list expanded from groundwater only)**

Water from CDF cell is combination of groundwater, dredge water, precipitation

#### Primary dredge water contaminants

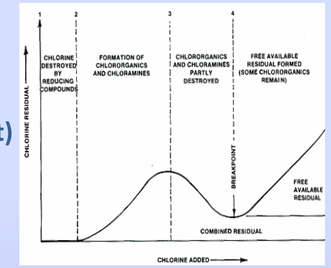
- Organic compounds (PAHs, PCBs)
- Metals
- Ammonia
- Oil & grease
- Suspended solids

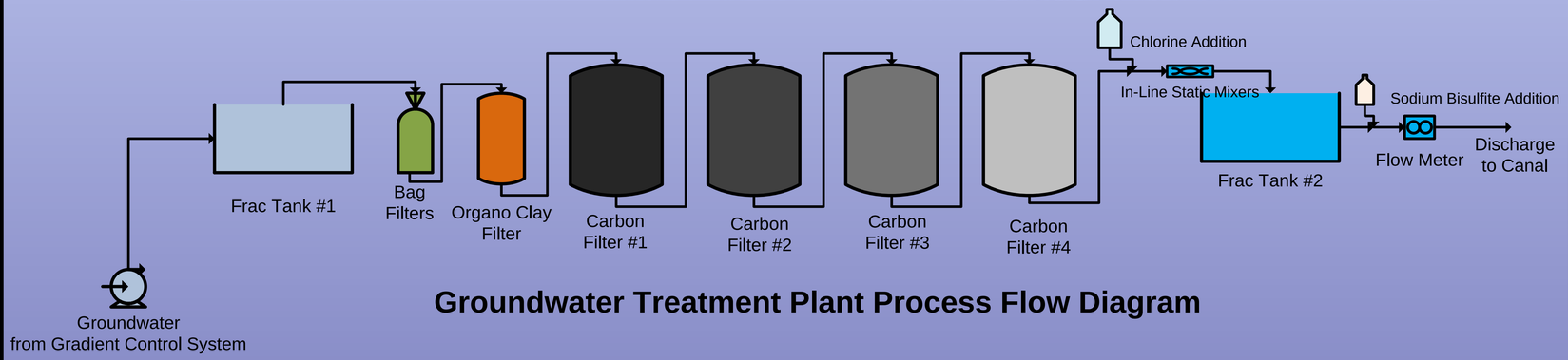
#### Proposed primary processes (future plant)

- Coagulation/Flocculation: metals removal
- Clarifiers: metals removal
- Chlorination: ammonia removal
- Organo clay filters: oil removal
- Carbon filters: organic compound removal/polishing
- Sodium bisulfite addition: dechlorination
- Discharge to Canal

**Plant capacity**: 200 gallons per minute

Breakpoint Chlorination




**Groundwater Treatment Plant Process Flow Diagram**